CLAIMS

We claim:

1. A method comprising:

allocating a first portion of a first memory as a static section to store a main program which uses functional programs stored in a second memory;

allocating a second portion of the first memory as a dynamic section to store other programs, the dynamic section including an overlay space to overlay the functional programs loaded from the second memory to conserve memory capacity of the first memory; and

allocating a third portion of the first memory as a prelude space to store preludes which provide resource identifiers to identify the functional programs to be loaded into the overlay space, so that when the main program is to perform a functional operation without identifying a particular functional program stored in the second memory, a corresponding prelude in the prelude space for the functional operation provides a corresponding resource identifier to load a corresponding functional program into the overlay space.

2. The method of claim 1, wherein the allocating of the prelude space allocates the prelude space in the static section of the first memory.

3. The method of claim 1, wherein the allocating of the prelude space allocates the prelude space in the dynamic section of the first memory.

4. The method of claim 1, wherein the allocating of the dynamic section allocates the overlay space with a fixed entry address so that the preludes need not assign an address for loading the functional programs.

5. The method of claim 1, wherein the allocating of the first, second and third portions are allocated on the first memory resident on an integrated circuit and the functional programs to be loaded into the overlay space are resident on the second memory external to the integrated circuit.

6. A method comprising:

executing a program statement of a main program to perform a particular functional operation without identifying a corresponding functional program;

executing a prelude stored in a prelude space of a memory to provide a resource identifier for the functional operation;

using the resource identifier to identify a corresponding functional program to perform the particular functional operation;

loading the functional program into an overlay space allocated in the memory; and

executing the functional program in the overlay space.

7. The method of claim 6, wherein the loading the functional program into the overlay space loads the functional program into a fixed entry address so that an address to load the functional program need not be specified in the prelude.

8. The method of claim 7, wherein executing the prelude loads the resource identifier into a register and transfers execution to a routine to call the functional program.

9. The method of claim 8, wherein using the resource identifier includes reading the resource identifier in the register by the routine to call the functional program.

10. The method of claim 9, further comprising returning to the main program after executing the functional program in the overlay space.

11. The method of claim 9, wherein executing the functional program executes a statement requiring at least one other functional program to be loaded into the overlay space and in which nested calling of functional programs are achieved by loading multiple functional programs into the overlay space.

12. An apparatus comprising:

a first memory having a first portion as a static section to store a main program which uses functional programs, a second portion as a dynamic section to store other programs which reside in the first memory for a shorter duration than the main program, and a prelude space to store preludes which provide resource identifiers to identify the functional programs to be loaded into an overlay space located within the dynamic section; and

a second memory operably coupled to store the functional programs and to transfer a particular functional program into the overlay space when the main program performs a functional operation without identifying the particular functional program

stored in the second memory, but in which a corresponding prelude in the prelude space for the functional operation provides a corresponding resource identifier to identify the particular functional program to be loaded into the overlay space.

13. The apparatus of claim 12, wherein the first memory is a random access memory resident in an integrated circuit and the second memory is an external memory to the integrated circuit.

14. The apparatus of claim 13, wherein the second memory is larger in capacity than the first memory, but in which the functional programs are loaded into the overlay space to allow overlay in use of the functional programs.

15. The apparatus of claim 14, wherein the overlay space has a fixed entry address so that an address to load functional programs need not be specified in the preludes.

16. A multi-function handheld device comprising:

a system on a chip integrated circuit that includes an internal memory arranged to have a first portion as a static section to store a main program which uses functional programs, a second portion as a dynamic section to store other programs which reside in the internal memory for a shorter duration than the main program, and a prelude space to store preludes which provide resource identifiers to identify the functional programs to be loaded into an overlay space located within the dynamic section, the overlay space to have a fixed entry address; and

an external memory operably coupled to the integrated circuit to store the functional programs and to transfer a particular functional program into the overlay space when the main program performs a functional operation without identifying the particular functional program

17. The multi-function handheld device of claim 16, wherein the internal memory is a random access memory and the external memory is a flash memory device.

18. The multi-function handheld device of claim 16, wherein the external memory is larger in capacity than the internal memory, but in which the functional programs are loaded into the overlay space to allow overlay in use of the functional programs.

19. The multi-function handheld device of claim 16, wherein the overlay space has a fixed entry address so that an address to load functional programs need not be specified in the preludes.

20. The multi-function handheld device of claim 16, wherein the integrated circuit includes a register for the preludes to load resource identifiers, which are to be used by a calling routine to load the functional programs.